

State of Hawaii
Department of Agriculture
Division of Plant Industry
Plant Quarantine Branch
Honolulu, Hawaii 96819

November 21, 2010

Board of Agriculture
Honolulu, Hawaii

SUBJECT: Request for Adoption of an Interim Rule to Prohibit the Movement of Coffee Plants (any species of the genus *Coffea*), Plant Parts, Unroasted Seeds, and Used Coffee Bags out of a Primary Quarantine Zone in the Kona area and the Ka'u area on the Island of Hawaii and out of a Secondary Quarantine Zone, which includes the Entire Island of Hawaii Other than the Primary Quarantine Zone, Except by Permit Requiring Mitigative Measures.

PROCEDURAL BACKGROUND: Pursuant to 150A-9.5, Hawaii Revised Statutes (HRS), the Department of Agriculture may establish an interim rule governing the transport of flora and fauna into and within the State. An interim rule may be adopted in the event that the importation or movement of any flora or fauna, in the absence of effective rules, creates a situation dangerous to public health and safety or to the ecological health of flora or fauna present in the State which is so immediate in nature as to constitute an emergency. No interim rule can be adopted without a prerequisite finding by the Advisory Committee on Plants and Animals that the foregoing criteria stated in §150A-9.5(b) is met. The interim rule shall be effective for not more than one year.

Once adopted by the Department, any interim rule must be published within twelve days of issuance at least once in any newspaper of general circulation in the State.

CURRENT AUTHORITY: Currently, the importation of coffee plants plant parts, unroasted seeds, and used coffee bags into the State are regulated under Chapter 4-70, Plant and Non-Domestic Animal Quarantine Plant Import Rules. The introduction of coffee plants, plant parts, unroasted seeds, and used coffee bags is prohibited except by permit for propagation or roasting. For propagation, coffee plants and plant parts, including seeds, are treated and held under one year quarantine in an approved quarantine facility. For roasting, unroasted seeds and used coffee bags are treated with an approved treatment prior to shipment into the State.

Chapter 4-72, Hawaii Administrative Rules (HAR), the Department's Plant and Non-Domestic Animal Quarantine, Plant Intrastate Rules, regulates the intrastate movement of plants, generally. Section 4-72-3 Hawaii Administrative Rules (HAR), requires inspection of propagative plants and plant parts prior to being transported between islands of the State. Section 4-72-4, HAR, prohibits interisland movement of commodities infested with a pest unless treated with a pesticide that exterminates the pest. Neither of these rule sections address unroasted coffee seeds or coffee bags. Moreover, the Coffee Berry Borer, *Hypothenemus hampei*, a destructive coffee pest recently confirmed as present on the island of Hawaii, cannot be visually identified with certainty and pesticide treatments on unroasted seeds are problematic for organic coffee growers. Currently, there is no provision in Chapter 4-72, HAR, that addresses the Coffee Berry Borer or that restricts movement of coffee relative to the Coffee Berry Borer. In all likelihood, it would take a minimum of four months to adopt rules through the regular chapter 91, HRS, rulemaking process to address this situation. In the absence of effective rules, coffee plants and parts thereof may move freely throughout the State. Thus, an interim rule is proposed to restrict the movement of coffee relative to the Coffee Berry Borer until permanent rules can be adopted.

Background:

A University of Hawai'i at Manoa's (UH) College of Tropical Agriculture & Human Resources graduate student, Elsie Burbano, was conducting field research in Kona on the island of Hawaii and collected apparently infested coffee berries from several farms in the area. Suspecting that the infestation may be Coffee Berry Borer, Ms. Burbano delivered samples of the coffee berries to the Hawai'i Department of Agriculture (HDOA), Plant Pest Control Branch (PPC) for identification on September 2, 2010. Adult beetles dissected from affected coffee fruit were sent for identification to several beetle experts. Dr. G. A. Samuelson of the Bishop Museum initially identified this damaging pest as *Hypothenemus hampei*, the Coffee Berry Borer. Subsequently, on September 8, 2010, Dr. Natalia Vandenberg, U.S. Department of Agriculture-Agricultural Research Service (USDA – ARS) Systematic Entomology Laboratory, made a final determination, confirming the identity of *H. hampei* (Ferrari), the world's most destructive insect coffee pest.

Problem:

It is unknown at this time how Coffee Berry Borer will affect Kona coffee yields and quality. Likewise, the impact on farm gate, wholesale and retail value cannot be determined at this time.

Coffee Berry Borer researchers estimate the damage caused by the Coffee Berry Borer worldwide to be about \$500 million per year in an industry worth \$90 billion per year.

The Coffee Berry Borer lays its eggs in the coffee cherry and as the eggs develop into larva, the larva feed inside the coffee bean. In addition to feeding damage, coffee beans may be further damaged by secondary fungal, bacterial, and insect infestation. The combined damage can reduce yield, lower the quality, and possibly destroy the entire bean. Unlike the Black Twig Borer, which is a coffee pest that has been in Hawaii for over 50 years, Coffee Berry Borer can reduce coffee yields by up to 90% in some coffee producing areas of the world. (See Attachment A.)

Description:

Adult female beetles range in size from 1.4-1.7mm (1/16 inch), with males much smaller. When adult beetles emerge from pupation, their abdomen appears a blackish-brown, with a lighter brown pronotum. As they reach maturity, their bodies darken to black.

Coffee Berry Borer is extremely similar in appearance to *Hypothenemus obscurus*, the Tropical Nut Borer, and *Xylosandrus compactus*, the Black Twig Borer, which are both found on coffee plants in Hawaii. Physical differences can only be spotted with a microscope, and sometimes only by an expert.

Life History:

Coffee Berry Borer spends most of its life inside coffee berries. Beetles take 28-34 days to complete their development. Female beetles bore holes into mature and immature coffee berries, still attached on the tree, through the scar on the blossom end of the berry. They create "galleries" in the berries, where they deposit their eggs. Once eggs hatch, beetles larvae eat their way through the berry and into the bean, or endosperm, of the seed. Reproduction can continue in berries that fall to the ground. Adult females remain in the berries once eggs are laid. Their progeny will emerge to find new berries to deposit their eggs.

Distribution of Coffee in Hawaii:

There are 6,500 acres under cultivation statewide, with annual production running between 6 and 7 million pounds.

Kona and the Big Island:

Kona has produced coffee continuously since the early 1800's and contains nearly 600 independent farms. Farms average just 3 acres and only a handful have 50 or more acres. Total Kona coffee acreage is over 2,000 acres and production exceeds 2.0 million pounds in most years.

Production of high quality coffee is steadily developing in other districts on the eastern slopes of the Big Island in Ka'u, Hamakua, and Puna. Puna is the newest of the group where 36 farms are cultivating about 115 acres.

Kauai:

Kauai has the largest coffee orchard in Hawaii and in the United States with 3,000 acres in production. There are also some smaller coffee orchards on this island.

Maui:

Maui has several coffee farms spanning from the Kaanapali, to the slopes of Haleakala, and to an organic farm in Hana. To date, 500 acres of coffee have been planted on converted sugar cane lands.

Molokai:

The 500-acre plantation and mill in the village of Kualapu'u is the only source of 100% Moloka'i coffee.

Oahu:

Oahu has over 100 acres of coffee. Coffee trees are planted on both sides of Kamehameha Highway between the towns of Wahiawa and Waialua.

Distribution of the Coffee Berry Borer in Hawaii:

The distribution of Coffee Berry Borer is limited to part of North Kona, South Kona, and very recently, has been discovered in Waiohinu, Ka'u on the island of Hawaii. (See Attachments B, C, and D which illustrate survey results from recent surveys conducted by HDOA PPC.)

Dissemination:

Natural dissemination of this pest is slow. Dissemination of the borer is not brought about by the lengthy flight of the insect nor are they generally carried by wind, but by slow and radiating invasion from the initial sources. The females abandon the berries left in the fields after the picking of the crop to attack berries in their earliest phases. Coffee Berry Borer can spread when coffee is moved to the processors in baskets, used coffee bags, or on vehicles.

CBB can fly but are not strong fliers. The proposed quarantine zone gives a 5 mile buffer to account for this. According to the literature:

“Decazy (1989) claimed that the majority of individual *H. hampei* fly very little, but a small proportion can travel long distances in search of new berries, often aided by air currents. Flight may be induced by various factors: the first rains following the inter-harvest period, the depletion or deterioration of food resources within the berry (overcrowding, waterlogging, rotting, etc.), or the search for a mate or berry suitable for oviposition (De Oliveira Filho, 1927). Although rain is one of the factors that induces females to fly, female *H. hampei* have not been observed to fly when it is actually raining (Hernandez-Paz & Sanchez de Leon, 1972) and are usually reported to fly during mid- to late-afternoon (Corbett, 1933; Morallo-Rejesus & Baldos, 1980). Dissemination of the pest is generally considered to take place by long and short distance flight, passive transport (animals, vehicles, humans, wind, etc.) and the coffee trade (Sponagel, 1994). In Ecuador, *H. hampei* was seen to spread at a rate of 30-60 km per year (Sponagel, 1994).

When they meet with coffee berries the Coffee Berry Borer shows no further inclination for flight. They may be carried in new sacking containing clean coffee. (Attachment E).

Eradication/Control Strategy:

There are no chemical insecticides available in Hawaii that can effectively control CBB. The beetles spend most of their lives inside the fruit, therefore, chemical control strategies are limited.

Without effective chemical insecticides available, coffee farms are left with management and cultural practices that can lessen the impact of CBB. HDOA and UH have started to investigate various control methods, including biological control, which involves finding natural enemies of this beetle. However, at this time, none appears to exist.

The Coffee Berry Borer likely cannot be contained, even with the establishment of quarantine zones; however, its general dissemination, which is slow, can be retarded for many years if an effective quarantine is established and maintained. The Coffee Berry Borer spreads through human activity (i.e., unroasted seed moving purposely from the field to the processor or from growing area to growing area) and its spread can be slowed through careful pest management practices. Time will allow for more research to be conducted on control measures, including effective, acceptable treatments and biological control. Time will allow for the concentration of more immediate control efforts to be done in the areas affected by the Coffee Berry Borer.

Boundaries of Proposed Primary Quarantine Zone:

The Hawaii Department of Agriculture proposes to establish a primary quarantine zone in parts of Kona and Ka'u that have been found, through survey, to be infested with the Coffee Berry Borer. For delineation purposes, roadways are proposed to mark the boundaries of the quarantine area. The proposed

quarantine zone extends from Naalehu, Ka'u to North Kona on the island of Hawaii bordered on the south from mile marker 62 on Highway 11 near Naalehu, Ka'u; and north to mile marker 29 on Mamalahoa Highway (Hwy 190) and mile marker 93 on Queen Kaahumanu Highway (Hwy 19). This primary quarantine zone is established to prevent the spread of the recently discovered Coffee Berry Borer from areas infested by the Coffee Berry Borer to uninfested areas within the island of Hawaii.

Proposed Secondary Quarantine Zone

In addition, the Hawaii Department of Agriculture proposes to establish a secondary quarantine zone which will constitute the entire island of Hawaii, other than the primary quarantine zone. Surveys show that the primary quarantine zone in parts of Kona and Ka'u is infested with the Coffee Berry Borer, and that the other areas of the Island of Hawaii appear to be free of Coffee Berry Borer. However, this does not mean that these uninfested areas will be free of this pest the week after a survey. First, people could easily take host material out of the infested areas in Kona and claim that it is from an uninfested area when the material is shipped off-island. Second, coffee farms in uninfested areas could become infested quite easily due to movement of host material out of the primary quarantine area, not be aware of their exposure to infested host material, and export off island without any restrictions, thereby spreading the pest. This secondary quarantine area is established to prevent the spread of the Coffee Berry Borer from areas infested by the Coffee Berry Borer to uninfested areas of the State.

Permit Required for Intra-Big Island and Interisland Movement:

Under this proposed interim rule, movement of coffee plants, plant parts, unroasted seeds, and used coffee bags from the quarantine zones to uninfested areas of the State will require a permit that subjects these items to mitigative treatment and/or measures prior to movement. Permits will be limited to the following uses: propagation; roasting, and research. (After the Advisory Committee on Plants and Animals recommended approval of an interim rule at the Committee's November 17, 2010 meeting, the provisions of the proposed interim rule regarding permits for roasting, have been further developed as discussed under (b) below, and the subject of export to the mainland has been clarified).

(a) Propagation: Under permits for propagation, coffee plants and plant parts, including seeds, must undergo an approved pesticide treatment and one-year quarantine at an approved quarantine facility.

(b) Roasting: Under permit conditions for roasting, unroasted coffee seeds (green beans), and used coffee bags must undergo approved treatment and/or mitigation measures to reduce the risk of spreading Coffee Berry Borer. Currently approved treatments include Methyl Bromide, Profumo, and heat

treatment at 315 degrees Fahrenheit for at least 5 minutes as specified by permit, prior to movement. For heat treatment, the unroasted coffee seeds (or green beans) must be removed from the coffee bag, heat treated, contained in a different type of bag, and the original coffee bag sterilized or destroyed. Under permits for roasting, unroasted coffee seeds and used coffee bags must be held in a safeguarded area until the time of roasting (destruction). Used coffee bags that hold unroasted coffee seeds for roasting must be slashed and discarded when empty, or washed and dried for next usage, as specified by permit.

As an alternative mitigation method to the currently approved treatments (fumigation or heat treatment), the six-step protocol described below is available for the movement of unroasted seed (green coffee beans) from the primary zone to the secondary zone and from the primary and secondary zone to uninfested areas of the State, provided that all six requirements are met: (1) movement is limited to a facility that is five miles away from a coffee-growing area; (2) unroasted seed is double bagged in mylar or thick* non-permeable plastic bags that are sealed and labeled to identify the unroasted seed as being from a specific quarantine zone; (3) unroasted seed from a quarantine zone is held and safeguarded from other unroasted seed only in an area that can be easily disinfested and that is specified in the permit, until roasting; (4) all packing material and bags that came in contact with the unroasted seed are treated or disposed of* so as to prevent the spread of Coffee Berry Borer; (5) PQB inspectors are allowed access to the holding/safeguarding area specified permit and to the roasting area to confirm compliance to the permit conditions; (6) records of movement of unroasted seed under permit shall be available to PQB inspectors.

As other treatments and mitigation methods for unroasted seed (green coffee beans) are validated, they may be approved by the PQB Chief and inserted into the permit conditions as alternative mitigative measures.

(c) Research: Permits for research shall require that the Coffee Berry Borer, coffee plants, plant parts, unroasted seeds and used coffee bags be moved in an approved manner* that will contain the Coffee Berry Borer until these items reach the approved laboratory site.

Under the above-described conditions of movement, the risk of spread of Coffee Berry Borer will be reduced because each type of permit, i.e., for propagation, roasting, or research purposes, requires multiple mitigation measures to lessen the likelihood that movement will introduce and establish Coffee Berry Borer in uninfested areas of the State.

Movement for Export

Movement of coffee plants, plant parts, unroasted seeds, and used coffee bags from the quarantine zones for export to the continental U.S. mainland will not be subject to the proposed interim rule, as there are no coffee farms there.

ADVISORY COMMITTEE ON PLANTS AND ANIMALS

This request was submitted to the Advisory Committee on Plants and Animals at its meeting on November 17, 2010 at the Plant Quarantine Branch conference room. The meeting start time was delayed by approximately 30 minutes to allow Advisory Committee members to review recently received testimonies. A brief summary of the request was given by PQB Manager Carol Okada. Advisory Committee Chair, Dr. Lyle Wong then allowed for the presentation of testimonies.

PUBLIC TESTIMONY

1. Bruce Corker, Coffee and Avocado Farmer in the Kona Region and President of Kona Coffee Farmers Association (KCFA) representing 225 coffee farmers, testified that the basis for the HDOA's request for an emergency finding had not been provided to interested parties and that the Kona coffee farmers had not been given sufficient notice and time to review and respond to this Committee. Mr. Corker also requested a one-week delay and that the meeting be held in Kona so that parties most directly related could have the opportunity to respond, or alternatively, that farmers in Kona be permitted to provide testimony via video conferencing. Mr. Corker also said that the Committee did not have ample time to review testimonies. Mr. Corker said that the evidence does not show that the situation is so dangerous as to constitute an emergency under the statutory standard, as the Coffee Berry Borer is a slow-moving pest which, he has been told, may have been in Kona for as long as 20 to 30 years. He said that HDOA should go through the regular rulemaking process for quarantine and carefully scrutinize the facts. He recommended that HDOA and the Advisory Committee should be looking at ways to protect other growing areas in a way that would minimize damage to Kona coffee growers and the reputation of Kona coffee. Methyl bromide fumigation would ruin their reputation, affect the premium prices they receive, and jeopardize their organic status. He suggested that by putting a quarantine in place, the economic damage to other growing regions in the State may be significantly greater than the damage that might be done by the Coffee Berry Borer. He also said that the request was not clear on export out of Kona.
2. Dan Kuhn, President of Hawaii Coffee Growers Association (HCGA) and Chair of the Coffee Berry Borer Task Force, testified that HCGA represents 4,300 coffee farms on all major islands and all the coffee regions in Hawaii. Mr. Kuhn stated that the group (HCGA) had numerous discussions about the

Coffee Berry Borer and unanimously recommended a quarantine for the entire Big Island with a second tier around Kona. He pointed out that he considered it an emergency when the current grading of coffee could go from "extra fancy" to "prime" or less because of coffee berry borer damage. CBB worldwide is at the top of the list of coffee pests and Hawaii is fortunate that the State is still free of coffee leaf rust. Mr. Kuhn stressed that the presence of Coffee Berry Borer in Hawaii is an emergency. He added that the Coffee Berry Borer Task Force is a voluntary effort with members from CTAHR (College of Tropical Agriculture and Human Resources), PBARC (United States Pacific Basin Agricultural Research Center), KCC (Kona Coffee Council), KCFA (Kona Coffee Farmers Association), HARC (Hawaii Agriculture Research Center), USDA, APHIS (U.S. Department of Agriculture, Animal and Plant Health Inspection Service), HDOA (Hawaii Department of Agriculture), HCGA (Hawaii Coffee Growers Association), HCA (Hawaii Coffee Association), etc. Although the regulatory members of the Task Force did not vote on the issue because of conflict of interest, all but one of the industry members supported the quarantine. There is overwhelming support on the Coffee Berry Borer Task Force recommending quarantine. There is a lot of concern regarding how implementation of quarantine would affect various farmers, but the Task Force strongly feels that this is an issue that needs to be addressed after implementation of the quarantine.

3. Tom Greenwell, owner of Greenwell Farms, President of Hawaii Coffee Association, and Kona Coffee Council representative, testified that he found out about Coffee Berry Borer in the last week of August (2010). Mr. Greenwell added that as soon as he heard what the beetle was, he checked his field and found hot spots. Areas around his mills are 100% infested. He stated that this is a very damaging insect. Mr. Greenwell testified that this quarantine would greatly impact him financially because he ships approximately 600 to 800 bags to Oahu, Maui and Kauai. He is concerned about the potential spreading of Coffee Berry Borer and the impact to farmers throughout the State of Hawaii. He believes the Coffee Berry Borer to be devastating and worst pest of coffee. He has been fumigating his coffee and he supports the one-year quarantine (interim rule).
4. Jim Wayman, President of Hawaii Coffee Company (Lion Coffee and Royal Kona Coffee) and was asked to represent the Kona Coffee Council, testified that his company has a processing mill on the Big Island, which buys coffee cherry fruit from farmers, processes the cherry into green coffee, and ships it to Oahu. His company has bought over 4 million pounds of cherry from farmers (20% of the entire Kona crop) and is heavily involved in the industry. There are financial problems associated with quarantine treatment. His company has to fumigate all coffee coming into Hawaii, and therefore, he can estimate that his company will have to spend an extra \$25,000-\$30,000 fumigating coffee coming off the Big Island (due to the quarantine treatment. However, Mr. Wayman testified that he is in favor of a two-tiered quarantine

program: one out of Kona and the second around the Big Island. He added that the quarantine seems like the fair thing to do. Mr. Wayman, stated regarding the status of Coffee Berry Borer in Hawaii, that because it is now discovered in Kona, that it cannot be anything less than treating coffee out of Kona because he would not like to see financial hardships fall on anyone else. Twenty five percent of the farms that he has dealt with have Coffee Berry Borer infestation in one degree or another, about 8% very light, 8% moderate, and 8% heavy. Luckily, because of the mix, some farms having none or little of the Coffee Berry Borer, the infestation hasn't had impact on the ability to make coffee, so far. Once you have this pest, it can't be eradicated; the infested farms will need to minimize its impact. The farms need to have this program, even if we have to err on the side of being conservative. Mr. Wayman urges HDOA to come up with a methodology to impose a treatment that has the least impact on the farmers who sell organic coffee. Partial roasting is an accepted method but adds \$1 per pound to the price. One suggestion for a solution would be to put coffee beans in a type of bag impervious to air instead of in a burlap bag. It seems feasible for coffee. Roasting facilities could maybe be set up as safe zones.

5. David Gridley, owner Maui Oma Coffee Roasting Company, buys coffee from farmers throughout Hawaii, for restaurants and resorts. He is a board member of two coffee associations but is speaking for his own business. He roasts coffee for many small farmers on Maui. Most Maui coffee farmers are very concerned about the potential spread of Coffee Berry Borer and how it could impact their farms. The coffee industry in Maui is blossoming at this point, so they are extremely concerned. It is important to take steps to control the spread of Coffee Berry Borer and it's also important to emphasize sanitation practices and regulate transport of equipment and people from one farm to another farm. Procedures should be created that can be put in place quickly, so that the product does not sit and commerce in the coffee industry is not stifled. Mr. Gridley said that he is also concerned that organic coffee farmers be provided a treatment that does not keep them from selling their product as organic product. He asked that HDOA press USDA for approval of natural treatments for green coffee, such as ozone and other cleaner treatments effective for dealing with pests, as alternatives to methyl bromide. Mr Gridley said that the most important thing is to first protect the small farmer and develop the coffee industry of coffee in the State, and to do it as safely and efficiently as possible.
6. Marylou Moss, a Holualoa coffee with her husband for about 8 years, testified against declaring the Coffee Berry Borer an emergency situation and opposed an interim rule instituting a quarantine and permit system. She stated that adherence to the normal rulemaking process is warranted in order to have a full and thorough evaluation of the proposed actions and their consequences and to establish sound rules. She asked, "What's the big

rush?" She said that it is reasonable to expect that fumigation or partial roasting of green coffee would be harmful to Kona coffee and, possibly, all Hawaii coffee. She said that farmers have seen little signs of help on controlling the pest in Kona but much emphasis on isolating Kona.

7. Lorie Obra, Pahala and Ka'u, Rusty Hawaiian Coffee, president of Ka'u Coffee Growers cooperative, testified that she is concerned that an island wide quarantine would have an adverse impact on their district. They have fewer resources and lower sales and are still building a name for themselves. Adding quarantine costs like fumigation will add to their costs. She asked the Advisory Committee if heat-sealed mylar bags could be used instead of burlap bags. She thought it would be more effective to work with individual landowners to eradicate Coffee Berry Borer from a location rather than imposing extra costs for quarantine on farmers who have no evidence of the pest on their farms. An island-wide quarantine will allow coffee to travel freely throughout the Big Island which would ensure the migration of Coffee Berry Borer to the coffee farms in Pahala. Giving Ka'u the same protection afforded to the other islands would be just as effective in stopping the spread of Coffee Berry Borer on the island. Ka'u has made large strides in recent years in establishing itself as a premium coffee grower in Hawaii and the world. She asked that Ka'u be protected from Coffee Berry Borer and the consequences of quarantine.
8. Mike Conway, agriculture manager for Dole Food Company on Oahu, testified that coffee growers on other islands than the Big Island have agricultural practices that are decidedly different than in Kona and are mostly all in the same situation. There are only significant sized growers on Oahu who farm coffee intensively and in large acreages, mechanized, typically with 5% - 8% wastage of coffee left on the ground after harvest. If Coffee Berry Borer got into our orchards, it's fair to say we'd probably be severely impacted and out of business. We don't have control means to clean sweep out of orchards and cannot do it economically out here. Dole Food Co. supports protective measures to impose on the Kona area and Big Island. He doesn't like the word "quarantine" but favors sensible protective measures against this insect.
9. Thomas Kailiawa – Kau, represents his own coffee farm. He stated that quarantine and fumigation should not be implemented because of the hardship on small coffee farmers. He said that small farmers are willing to follow rules.
10. Dr. Sean Steinman – testified that he doesn't have an economic relation to selling or growing coffee but noted that there are unanswered questions about the Coffee Berry Borer's ability to survive in certain situations or be transmitted on persons. He stated that it would be prudent to take some

control measures to slow down the spread of this pest and suggested a six-month quarantine with option to renew or adjust, if necessary.

DISCUSSION

Advisory Committee Member Dr. Sarah Park asked if there were experts on Coffee Berry Borer at the hearing. Dr. Neil Reimer, Manager of HDOA, Plant Pest Control Branch, answered that he is not an expert but he is an entomologist, has expertise with new pests coming into the State, has been involved with the Coffee Berry Borer (or CBB) on the Big Island, and has read a lot of literature on the subject.

Dr. Park asked where else in the world is CBB found. Dr. Reimer answered that CBB is found everywhere coffee is grown. Hawaii was one of the last places where it did not exist.

Dr. Park asked what kind of control measures have been instituted in other places known to have CBB and whether these control measures have been successful or not. Dr. Reimer answered that HDOA and USDA, PBARC, and UH, as well as USDA ARS experts on the mainland have reviewed control measures used in other CBB infested areas but the problem is that the control methods in one part of the world aren't transferable to Hawaii. For example, pesticides may be used to control CBB in some foreign countries, but they may not be registered for use in U.S. or Hawaii. Another example is sanitation, such as removing the infested coffee cherries from the field. Hawaii does not have cheap labor to do that. Cherries harbor the CBB and that is how CBB remains in the field, by being in the old cherries on the ground or still in the trees.

Dr. Park asked what happens from the harvesting of the cherry to roasting, whether the quality is affected, and whether the coffee berry borer spreads during this process? Dr. Reimer responded that he is not an expert on the processing but is learning since the outbreak of CBB on the Big Island. Essentially, once coffee cherry has gone through the milling process, it will kill the beetle, but CBB hitchhikers could get onto the processed beans and in that stock. CBB goes through different dispersal phases. The female CBB could fly and look for cherries from tree to tree, but they don't disperse very far. Once a female CBB finds a cherry, she can no longer fly. The female lays her eggs, spends the rest of her life cycle in the cherry. The offspring is now being found in traps and starting to move.

Dr. Park asked if there are other ways to select out infested cherries before they are shipped or processed? Mr. Wayman answered that current practice is that farmers are picking all the beans off the tree as they ripen and not segregating infested beans (cherries) and non-infested beans (cherries). The cherries are

put into one sack. In any given tree, you can have 5% of the cherries infested; and 95% not infested.

Dr. Park asked whether the infested cherry is visually obvious? Mr. Wayman answered that CBB infestation is relatively obvious, in that, you can't see the beetle but you can tell that something has bored a hole inside the coffee cherry. The farmers pick all of the cherries, infested and non-infested, and bring them to the processing mill and we begin the processing process. UH had data from Colombia that said about 40% of beetles come out when the cherries are dumped out of bag when the farmer takes the cherries to the processor. Another 50% of the beetles come out during the wet processing (bean fermentation). By the time you get the beans to the dryers to dry the coffee, only about 8% are still in there. Then the beans are dried at temperatures of up to 112 to 115 degrees and that is the death point for the Coffee Berry Borer. By the time you get the moisture to 12% and into a burlap bag, most of them, 99.9%, are gone at that time.

Advisory Committee Member Kenneth Matsui asked if the green bean stage refers to the stage in which the beans are dried to 12% moisture and placed in the burlap bag? Mr. Wayman answered that was correct. Although the coffee berry borer is 99.9% gone, once the beans are loaded onto a flat bed truck which takes the beans to the dock (Young Brothers), the CBB is flying around as you are driving through the Kona region. Because the beans are in burlap bags, the beetles can attach to the bags and embed themselves. It's no accident that if you look at an infestation map going down Kona, the prominence of infestation is along the highway. Beetles are attaching to vehicles going up and down the highway which means the beetles can attach to other things such as tour buses, people buying coffee and moving to other farms, and the migrant coffee pickers from South America who pick our coffee.

Dr. Park asked how a quarantine would be beneficial. Dr. Reimer answered that the quarantine would keep CBB from spreading by having measures in place to keep it from spreading. Dr. Park asked if what we're really doing is ensuring protective measures are in place to assure we aren't exporting CBB to the other islands. In her area (Department of Health (DOH)), quarantine is defined as a restriction on all movement. From a health aspect, DOH places a quarantine temporarily for as long as the disease's incubation period; once someone passed incubation, the infected person can leave the quarantine. A quarantine that's very specific on restricting all movement would really damage the coffee industry.

Advisory Committee Chair, Dr. Lyle Wong responded that quarantine for plants is different from what DOH does. If CBB was discovered initially on Kauai, there would be an outcry to prevent movement of coffee to any of the other islands.

Bruce Corker asked why CBB was only discovered in Kona this year if it's been there for 30 yrs. Years ago, a South Kona farmer saw damage on his crop,

bagged it up and sent to UH Manoa for identification. If CBB had been there, the damage rate was so low that nobody found it. We think the reason there's significant damage in some south Kona farms this year is this was the worst drought year in history in Kona. We suspect there was a direct correlation between that and the damage from CBB.

Dr. Neil Reimer stated that he see no evidence that CBB has been around Kona for 20-30 years. Based on the Department's Plant Pest Control (PPC) branch's experience, PPC went out and did surveys and found CBB was already widespread throughout the Kona region. We hoped to find a limited spread of infestation but found it was too widespread at the point. Based on that and how the beetle is being disbursed, it's mostly by people, we figure it was there at least a year or two years. We have no evidence that CBB was in Kona longer than that. One of the things we're finding is similar beetles doing similar damage to the coffee cherries. Very quickly we found out that one of the beetles we find is the twig borers or tropical nut borer. Twig borer would feed on the cherry but not go into the bean. We suspect that people have been seeing holes in the cherries but the evidence was not all CBB. Based on the distribution of CBB, it has probably only been here about a year or two. We want to keep it from spreading.

Advisory Committee Member Dr. Po Yung Lai said that the State does have a very extensive survey network for plant pests that has been in place for years. If there's a report of any new pests, then it would be reported, then confirmation would be made. Whether it has been here for over 30 years is questionable. Any new detection would be reported. The concern is for Hawaii coffee.

Advisory Committee Member Ken Matsui asked whether we are talking about a protective measure station, where the coffee goes before it's gets exported. He said that the Advisory Committee normally gets expert subcommittee testimony. Plant Quarantine Branch (PQB) Manager Carol Okada said that the interim rule process just goes to the Advisory Committee on Plants and Animals because it needed to be done quickly. An interim rule is only for regulating movement into and within the State; it does not touch on export. The only time it would touch on export is if the coffee beans have to go to another island or another part of the island first, before export. PQB had received a request to consider the use of mylar or plastic bags under the interim rule, but only after the submission to the Advisory Committee had been prepared. PQB tried to get as much industry input as possible, thought the mylar bag idea was a feasible one, but would need more control levels such as labels, etc., before agreeing, and could not resolve the question in time for the Advisory Committee submission.

Jim Wayman said that at his company's mill in Kona, during peak months between October and December, they bring in 50-70,000 pounds of coffee cherry a day. Until today, they never opened cherries and saw beetles. Now, when they open a 100 lb. burlap bag of coffee cherries, they regularly see CBB crawling on top of the beans. It's been confirmed by Neil Reimer that it's CBB.

Mr. Corker responded that no one can tell the difference between the twig borer and Coffee Berry Borer. It was discovered in August and now everyone is looking for them.

Advisory Committee Member Mr. Ken Redman asked why the CBB task force is needed and whether it's because the growers felt there was no need prior to this time. Dan Kuhn replied that if CBB wasn't deemed an emergency, there wouldn't be a task force.

In response to questions from Advisory Committee member Ken Matsui, Jim Wayman said that his company roasts coffee beans both in Kona and here on Oahu. Visually, the coffee coming out of Kona to Oahu looks totally clean.

Advisory Committee member Dr. Sarah Park asked, with regard to these protective measures, what is the Committee being asked to do? PQB manager Carol Okada answered that, first, the Advisory Committee is being asked to determine whether the CBB situation is an emergency; and if so, second, to recommend establishing a quarantine restricting movement. This involves whether the proposed interim rule is adequate; it can be revised. We heard the concern regarding export of coffee beans. If export is on a flight directly out of Kona, it wouldn't require any quarantine measures because an interim rule isn't concerned with export.

Advisory Committee Chair Lyle Wong said that the proposed interim rule is not asking the Advisory Committee to decide on details. It's leaving the specifics to PQB to decide.

Ms. Okada stated that there are several approved treatments....

Dr. Park asked what the process is to decide what those measures are and what kind of assurances there are that would be reasonable for all sides.

Dr. Wong stated the HDOA was presented with factual information and now the entomologists are saying that we have Coffee Berry Borer, the worst pest of coffee. It is confined to a specific area.

Mr. Corker asked if it met the immediate requirement and suggested to the Committee that they should be exercising great caution.

Dr. Wong stated that this is clearly an emergency and the Department needs to exercise its statutory authority to take appropriate action on the items that pose a significant risk.

Ms. Okada stated that the Committee may want to acknowledge the farmers from Ka'u who are not in the Primary Quarantine Zone. She stated that the

Committee may want consider the mylar bagging and labeling option if the roaster is away from coffee production areas. She added that that mitigation measure should be limited to movement of green beans only.

Dr. Park asked whether the processor must kill the beetles if you open the bag of cherries and they start to fly or do they die by themselves. Mr. Wayman answered that CBB will fly back into environment and start the process again. He added that CBB task force has held meetings which included HDOA, USDA, UH, and millers to discuss a protocol.

Dr. Wong stated that is not a quarantine action.

Ms. Okada said the grower to grower and grower to miller protocol is not part of the quarantine but it is part of the CBB strategy to minimize spread. The first step is the adoption of the interim rule to establish the quarantine. The second step is to have the growers and processors to develop a voluntary protocol. And the third step is the public outreach component that would educate the general public. The establishment of the interim rule itself is not the sole prevention measure.

Dr. Wong recessed the meeting at approximately 4:25 p.m.

Dr. Wong reconvened the meeting at 4:38 p.m.

Dr. Wong suggested a change to the proposed interim rule by deleting reference to specific treatments of Methyl Bromide, Profumo and replacing them with "approved treatment" and handling procedures as specified by permit. Dr. Wong stated that there is so much concern about the public concluding that all the coffee coming out of Kona is treated with Methyl Bromide. He added the Committee should consider limiting movement to bags that cannot be penetrated by the adult beetle, only moving green beans with low moisture content that will substantially mitigate the spread of CBB

Ms. Okada stated that the Branch could provide examples of permit conditions to the Board. If a new treatment or mitigation method is approved, the permits will be reissued with revised permit conditions to reflect the revised listing of approved treatments and mitigation measures.

Advisory Committee Member Mr John McHugh asked whether there is no longer a primary and secondary zone.

Dr. Reimer answered the important one is quarantine for the entire island with mitigation procedures in place. There is also concern about moving coffee out of Kona into other uninfested areas of the Big Island.

Dr. Wong stated that Dr. Lai's concern with the proposed interim rule is whether the secondary zone is inclusive of the primary, as the wording confuses in that way. The secondary zone should be the entire island of Hawaii not known to be infested at this time, and therefore, the secondary quarantine zone should be the whole entire island of Hawaii, except areas that are in the primary quarantine zone.

Dr. Lai also proposed that the language in the interim rule referring to the primary quarantine zone should be changed by deleting the word "runs" from Naalehu, Kau to North Kona, and replace "runs" with "covers".

Mr. Matsui questioned if CBB is found outside the quarantine zone, does the Committee need to reconvene to change that wording?

Dr. Wong answered that HDOA wants to avoid that, depending on what the operation program is.

Mr. Redman asked whether CBB will ever be eradicated? He also asked whether there are any provisions to rescind the quarantine.

Ms. Okada answered that the emergency interim rule ends in one year.

Dr. Wong asked, if there was no further discussion, whether there was a motion

Dr. Lai stated that "research for control" purposes should be changed to "research" purposes.

Dr. Lai made a motion that the Advisory Committee make: A finding that the Unrestricted Movement of coffee plants, plant parts, unroasted seeds, and used coffee bags, all of which are hosts of the Coffee Berry Borer, *Hypothenemus hampei*, out of a Primary Quarantine Zone in the Kona area and the Ka'u area on the Island of Hawaii, and out of a Secondary Quarantine Zone which includes the Entire Island of Hawaii, except for the primary quarantine zone, constitutes an emergency justifying an interim rule.. The motion was seconded by Mr. Matsui. The motion passed unanimously (8-0).

Dr. Lai then made a motion that the Advisory Committee make a recommendation for adoption of an interim rule to prohibit the movement of coffee plants (any species of the genus *Coffea*, plant parts, unroasted seeds, and used coffee bags out of a Primary Quarantine Zone in the Kona area and the Ka'u area on the Island of Hawaii and out of a Secondary Quarantine Zone, which includes the Entire Island of Hawaii other than the Primary Quarantine Zone, Except by Permit Requiring Mitigative Measures be approved. The motion was seconded by Mr. Tamaru. The motion passed unanimously (8-0).

The meeting was adjourned at 5:05 p.m.

STAFF RECOMMENDATION: Based upon the unanimous decision by the Advisory Committee on Plants and Animals (1) finding that the unrestricted movement of coffee plants, plant parts, unroasted seeds, and used coffee bags, all of which are hosts of the coffee berry borer, *Hypothenemus hampei*, out of a primary quarantine zone in the Kona area and the Ka'u area on the island of Hawaii and out of secondary quarantine zone which includes the entire island of Hawaii other than the primary quarantine zone constitutes as emergency justifying an interim rule; and (2) recommending to the Board the adoption of an interim rule to prohibit the movement of coffee plants (any species of the genus *Coffea*), plant parts, unroasted seeds and used coffee bags out of a primary quarantine zone in the Kona area and the Ka'u area on the island of Hawaii and out of a secondary quarantine zone, which includes the entire island of Hawaii other than the primary quarantine zone, except by permit requiring mitigation measures, it is recommended that the Board approve the adoption of the proposed interim rule.

INTERIM RULE: The proposed wording for the interim rule is as follows:

“HAWAII DEPARTMENT OF AGRICULTURE

PLANT QUARANTINE INTERIM RULE 10-1

**Restrictions on the Intrastate Movement of Coffee Plants, Plant Parts, Unroasted
Seeds, and Used Coffee Bags on the Island of Hawaii,
Except by Permit Issued by the Hawaii Department of Agriculture**

Under authorization granted in Section 150-9.5, Hawaii Revised Statutes (HRS), the Hawaii Department of Agriculture (Department) hereby establishes this interim rule to impose a quarantine on the movement of coffee plants, plant parts, unroasted seeds, and used coffee bags out of: (1) a primary quarantine zone which is an area that extends from Naalehu, Ka`u to North Kona on the island of Hawaii bordered on the south from mile marker 62 on Highway 11 near Naalehu, Ka`u; and north to mile marker 29 on Mamalahoa Highway (Hwy 190) and mile marker 93 on Queen Kaahumanu Highway (Hwy 19); and (2) a secondary quarantine zone which consists of the entire island of Hawaii, other than the primary quarantine zone. These quarantine zones are established to prevent the spread of the recently discovered Coffee Berry Borer from areas infested by the Coffee Berry Borer to uninfested areas within the island of Hawaii and within the State.

Movement or transportation of coffee plants, plant parts, unroasted seeds (green beans), and used coffee bags from the quarantine zones described

above, other than for export out of State, is prohibited except by permit issued by the Department for propagation, roasting, or research purposes.

Propagation: Coffee plants and plant parts, including seeds, for propagation, moving from the quarantine zones to uninfested areas of the State shall be under permit, treated with an approved pesticide treatment, and held under one year quarantine in an approved quarantine facility.

Roasting: Unroasted coffee seeds (green coffee beans) and used coffee bags for roasting, moving from the quarantine zones to uninfested areas of the State, shall be under permit and, prior to movement, shall be treated with an approved treatment and/or mitigation measures, as specified by permit.

Currently approved treatments include Methyl bromide, Profume and heat treatment at 315 degrees Fahrenheit for at least 5 minutes. For heat treatment, the unroasted green coffee beans must be removed from the coffee bag, heat treated, contained in a different type of bag, and the original coffee bag sterilized or destroyed. Under a permit for roasting, unroasted green coffee beans and used coffee bags shall be held in a safeguarded area until the time of roasting. Used coffee bags that held unroasted coffee beans for roasting shall be slashed and discarded or shall be washed for next usage, as specified by permit.

As an alternative mitigation method to currently approved treatments relating to roasting, the six-part protocol described below is allowed for the movement of unroasted green coffee beans from the primary zone to the secondary zone and from the primary and secondary zone to uninfested areas of the State, provided that all six requirements are met: (1) movement is limited to a facility that is five

miles away from a coffee-growing area; (2) unroasted green coffee beans are double bagged in mylar or thick non-permeable plastic bags that are sealed and labeled to identify the unroasted seed as being from a specific quarantine zone; (3) unroasted green coffee beans from a quarantine zone are held and safeguarded from other unroasted green coffee in an area that can be easily disinfested, as specified in the permit, until roasting; (4) all packing material and bags that came in contact with the unroasted green coffee beans are treated or disposed of, as specified by permit, so as to prevent the spread of Coffee Berry Borer; (5) Department Plant Quarantine Branch (PQB) inspectors are allowed access to the holding/safeguarding area identified in the permit and to the roasting area to confirm compliance with permit conditions; (6) records of movement of unroasted green coffee beans under permit shall be available to PQB inspectors.

The PQB manager is authorized to approve other treatments and mitigation measures for unroasted green coffee beans as these measures are validated and may revise permit conditions accordingly, to make alternate mitigative measures available.

Research: Coffee Berry Borer, coffee plants, plants parts, unroasted seeds (green beans), and used coffee bags for research purposes, moving from the quarantine zones to uninfested areas of the State, shall be under permit and safeguarded to an approved research facility.

Any person who violates this rule shall be guilty of a misdemeanor and fined not less than \$100. Notwithstanding the provisions of section 706-640, HRS, the

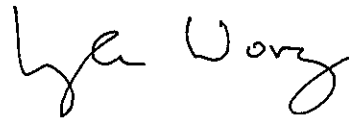
maximum fine shall be \$10,000. For a second offense committed within five years of a prior offense, the person or organization shall be fined not less than \$500 and not more than \$25,000.

This interim rule is valid for no longer than one year from the date of issuance.”



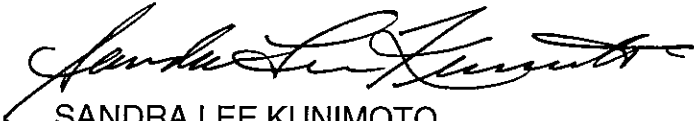
Carol Okada
Manager, Plant Quarantine Branch

BD-10-Coffee Berry Borer Interim Rule
co:jb



LYLE WONG, Ph.D.
Plant Industry Administrator

CONCURRED BY:



SANDRA LEE KUNIMOTO
Chairperson, Board of Agriculture